

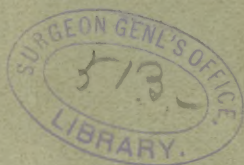
Booth (J. A.)

SOME CLINICAL NOTES ON EIGHT CASES OF
EXOPHTHALMIC GOITRE.

BY

J. ARTHUR BOOTH, M. D.,

Assistant Surgeon Manhattan Eye and Ear Hospital.



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SOME CLINICAL NOTES ON EIGHT CASES OF
EXOPHTHALMIC GOITRE. (GRAVE'S DISEASE.
MORBUS BASEDOWII.)

J. ARTHUR BOOTH, M. D.

(*Illustrated.*)

SINCE the first description of this disease over fifty years ago by Graves of Dublin, its characteristic features and etiology have attracted universal attention and discussion; but notwithstanding the mass of literature on the subject, we do not yet possess proofs as to the true pathology of the affection.

The disease is recognized by its three striking symptoms, namely: persistent increase of the frequency of the heart's action, enlargement of the thyroid body, and prominence of the eyeballs. Besides these we generally find other symptoms; tremor, flushing of face, anæmia, irritability, anxiety, dyspnœa, etc.; which are often common in other pathological conditions, and therefore are not to be considered as special features of the disease. All the cases do not give the three typical symptoms, but presenting different forms or combinations of the same, may be conveniently classified as follows:

(A)—The three cardinal symptoms are present and we find a pulse rate from 100 to 150, marked enlargement of the thyroid and exophthalmos.

(B)—One of the events in the symptomatic triad may be wanting: the prominence of the eyes being the one generally absent.

(C)—Two of the symptoms may be absent: usually the eyes and neck do not present any abnormal signs.

The following cases consulted me in the Nervous Department of the Manhattan Eye and Ear Hospital, and serve to illustrate the above classification:



(A)—CASE No. 1. Kindly referred to me by Dr. Harris of the Throat Department, January 23rd, 1893.

Louisa E —, aged 24. Single. Family history entirely negative. Parents still living and healthy. Up to the date of the present trouble she has never had any illness worthy of note. There is no history of a fall, blow or fright of any kind. Menses appeared when 14 years old and have remained regular since. Has never had headache or any trouble referable to stomach or intestines. About two years ago first noticed enlargement of the throat, and three months later the eyes became affected. The patient is positive that there were no heart symptoms until six months ago, when palpitation, throbbing in the vessels of the neck, shortness of breath and flushing of the face appeared. All these symptoms have gradually increased in intensity, and she is now very irritable, easily excited, anxious and unable to sleep because of the tumultuous action of the heart.

Examination—Fair complexion. Height 5 feet, 7 inches. Weight 125 pounds. Not anæmic; lips and conjunctivæ of good color. Both eyes are very prominent, especially the left, and the lids do not follow the movements of the eyeballs (Graefe's symptom.) Pupils are moderately dilated, reacting to light and accommodation. Fundus normal. Vision not impaired.

The enlargement of the thyroid body is marked; the right lobe being the larger. On inspection pulsation is quite noticeable over this region and along the sides of the neck. Over the middle of the thyroid region the neck measures 14 inches. Pulse 150 and of high tension. Apex beat is diffused but no murmur present. Respiration 24. Measurement over bust $31\frac{1}{2}$ inches; full inspiration $32\frac{1}{4}$. There is no tremor in hands or fingers. Knee jerks high but equal. Equilibrium good. Examination of urine negative. Patient is to have daily applications of galvanism and to take $\frac{1}{200}$ grain of Aconitia twice a day; also 15 grains of the Iodide of Potash t, i, d. The patient was also requested to practice full inspiration frequently and to rest as much as possible during the day.

March 1. There has been a decided improvement in all the symptoms. The eyes are less prominent and the neck now measures $13\frac{1}{4}$ inches. The pulse taken three times a day for the past two weeks shows a daily average of 104. Temperature 99. The patient is less nervous and excitable and her sleep has not been disturbed by an attack of palpitation in three weeks. The dose of Aconitia has been four pills a

day for over a fortnight. Once or twice she has had marked numbness of the tongue and fingers, but no symptoms of prostration. Galvanism has been applied regularly. Reduce Aconitia to one pill t, i, d.

June 28. Improvement still continues. The pulse varies between 88 and 100.

September 2. Owing to my absence from the city during the summer, treatment was stopped shortly after the last note. She now states that she was feeling well until the last three weeks when the old symptoms have gradually returned. Examination reveals the same features as at the first visit in January last. Pulse is very rapid; tense, small, 146. Temperature 100°. Marked flushing of the face, nervousness, tendency to perspire easily and occasionally attacks of palpitation. The eyes are quite as prominent as before. Thyroid body not as large as when first seen, but more noticeable than in June last. The neck measures $13\frac{1}{4}$ inches. Treatment resumed.

October 1. There is again decided improvement. One of the family takes the pulse three times a day and it is also recorded at the time of her daily visit. The record shows a variation between 98 and 110. Galvanism is applied six times a week. Patient is taking five pills a day.

November 8. Patient is discouraged and wishes to stop all treatment. Thyroidectomy was then proposed to her by both Dr. Curtis and myself, and she entered St. Luke's Hospital, where a few days later Dr. Curtis removed the right lobe of the thyroid.

With the exception of a moderate rise in temperature and some vomiting the patient made an uneventful recovery from the operation.

The course of the case up to the present time (four weeks since the operation) has been progressively favorable, but it is yet too early to make any decided report.

CASE No. 2. Emma W——, aged 28. Single. Seen for the first time January 5th, 1890. Family history negative. When a child had chorea, but gives no history of acute illness of any kind. Never had diarrhœa or vomiting. Has always been easily excited. Menses appeared at 17 and remained regular until eight years ago, then was frightened by a burglar in the house. After this did not menstruate for six months, when it was resumed, and she has had no irregularity since. Three years ago began to notice shortness of breath, and rapid, irregular, forcible action of the heart upon

slight exertion—she became very pale and lost considerable flesh.

One year later the cardiac symptoms increased, had frequent flushing of the face and then noticed prominence of the eyes. Three months later the neck became increased in size. Patient seems to be easily thrown into a state of mental excitement.

Examination.—Face flushed. Is very nervous and anxious. Tremor of hands quite marked. Pulse 120. Temperature $100 \frac{2}{5}^{\circ}$. Heart apex somewhat diffused, maximum intensity fifth space, just below the nipple. Over apex and transferred to the axilla, there is a soft systolic murmur. Both eyes are prominent, the right more so than the left. Graefe's sign also present. The thyroid enlargement is very noticeable, the right lobe being the larger. Circumference of the neck 13 inches.

Treatment.—Galvanism, Aconitia, Rest.

February 1. Pulse taken three times a day shows an average of 100. Sister states she is more excitable and irritable.

February 20. Has not attended the clinic regularly. Pulse 120. Patient is very nervous. Complains of headache and dizziness. Analysis of the urine shows a trace of albumen and hyaline casts.

March 3. Patient being unable to attend regularly as requested, all special treatment is abandoned. She now complains of a sudden giving out of the legs. After such a collapse she is perfectly able to rise and walk away.

April 13. All the symptoms became more severe. She had an attack of Mania and died. No autopsy could be obtained.

CASE NO. 3. William C——, aged 35. Married. Engineer. October 14, 1889. No history of nervous trouble in the family. When a child had chorea, but with this exception enjoyed good health up to the date of the present illness. No specific or rheumatic history. Digestion has always been perfect. Four years ago first noticed prominence of the eyes, and a few months later was troubled by palpitation of the heart and shortness of breath, especially after going up stairs. Two years ago his neck increased in size. Lately all these symptoms have increased in severity. He is now very nervous, has much dyspnoea and is unable to sleep. Within the past two months the hands have become tremulous. No headache or neuralgic pains in the legs.

Smokes and chews tobacco to excess. Bladder functions normal.

Examination.—There is marked enlargement of the thyroid gland. The neck measures 14 inches. Both eyes are prominent and the upper lids do not follow the movements of the eyeballs in a downward direction. Pupils and fundi normal. Pulse 160, small and of high tension. Temperature 100. There is a loud systolic blowing murmur, heard over the aorta, subclavians, carotids and whole thyroid region. The hands are very tremulous. Knee jerks high. Galvanism to be applied three times a week and patient is to take three pills of Aconitia ($\frac{1}{200}$ of grain) each day.

October 18. Has taken medicine faithfully. No tingling in the tongue, lips or extremities. Pulse 120. Temperature 100 $\frac{2}{5}$ °. To lie down as much as possible.

October 20. Condition about the same. States he is not so nervous. Pulse 120. Increase pills to four a day. Is also receiving galvanism daily.

October 23. Felt numbness in the fingers last night. Pulse 112. Temperature 99°. Patient is much quieter and is sleeping better at night.

October 28. Has not felt so well in two years. Pulse 96. Temperature 98°. Eyes are not so prominent. Reduce pills to three a day. To take 15 grains of Iodide of Potash three times a day.

November 1. States there is more room inside his collar than ever before. Neck measure 13 $\frac{1}{4}$ inches. Pulse 100. Temperature 99°. Continue treatment as before and in addition Ferrum redactum, Quin sulph, of each one grain, Acid Arseniosum $\frac{1}{20}$ grain t, i, d.

November 20. Is much stronger. Sleeps well. Pulse 80. Is not troubled now by shortness of breath and is not annoyed by palpitation, even after his day's work. No further diminution in prominence of eyes or in size of neck.

December 14. Patient has remained as well since last note. There is but little or no tremor in the hands. Pulse 86. Patient has obtained a position some distance from the Hospital and gives up further treatment.

(B)—CASE No. 4. Alfred G——, aged 40. Married. Carpenter. Referred by Dr. Webster, January 29, 1892.

There is no history of goitre or any nervous trouble in the family. With the exception of several mild attacks of rheumatism, he has never had any serious illness until the spring of 1891, when he had peritonitis. It was shortly after this

that he commenced to have a good deal of headache, chiefly frontal and through the temples, and then he noticed the gradually increasing prominence of his eyes, and was also troubled with palpitation of the heart after slight exertion. He has never received a fright, fall or blow of any kind, and there is no history of specific infection. Stomach functions normal, no vomiting or diarrhoea. Been married 17 years. No children.

Examination.—There is a marked protrusion of both eyes, the left being the more prominent. Thorough examination does not reveal any enlargement of the thyroid, nor has the patient noticed at any time the least abnormal prominence in this region. The pulse is 120 and of high tension. Cardiac dullness is increased but no murmurs are present. No paresis of ocular muscles. Pupils equal, responding well to light and accommodation. Graefe's symptom is not present. Hands and fingers steady, no enlargement of the joints. After walking across the room a few times, he feels prostrated and perspiration breaks out all over the body. Pulse now 140. The analysis of the urine does not show anything abnormal.

As the patient resided quite a distance from the city, he did not receive any regular treatment.

October 22, 1893. In reply to a recent letter of inquiry for information as to his present condition, he writes that his symptoms are about the same and states that there is no enlargement of the thyroid.

CASE No. 5. Dora R——, aged 17. Housekeeper, U. S. November 23, 1888. No neurotic family history. She has never had any serious illness and remained perfectly well up to two years ago, when she became quite nervous, and had frequent flushing of the face, always accompanied by headache, chiefly frontal and over the eyes. Has never had any eye trouble. No history of vomiting or diarrhoea. First menstruation occurred when 11 years old and has remained regular ever since. Patient does not remember having received a fright or mental shock of any kind.

Examination reveals a slight but distinct enlargement of the thyroid gland, the right lobe being prominent. The eyes and co-ordination of the same are normal. The pulse is 120, weak and intermittent. A loud venous hum is heard over the carotids and thyroid body, but no organic murmur is discovered. There is an area of extreme tenderness over the second and third cervical vertebrae with referred sensations in

the forehead. Ordered Tincture Digitalis five drops every four hours. Patient is to have galvanism applied every other day. Blister placed on back of neck.

November 28. Tenderness of spine and referred sensations to forehead entirely disappeared. Pulse 120, stronger and no beats lost.

December 8. Condition unchanged. Increase digitalis to ten drops.

December 15. Patient only comes once a week. Galvanism stopped. Pulse 114.

CASE No. 6. Emily F——, aged 22. Married. June 15, 1890. All members of the family are healthy and have had no nervous disorders of any kind. There is no history of mental shock, but she has had a good deal of trouble with her husband and is now divorced. Married three years and has one child. Menstruation has always been regular. Digestion has never been otherwise than good. The patient dates her present trouble from an attack of rheumatism which she had in January last, as shortly after this she was annoyed by frequent attacks of palpitation and shortness of breath. Three months ago first noticed an increase in the size of her neck. No disturbance of vision.

On inspection the thyroid body is much enlarged, both lobes being equally involved. There is no exophthalmos and all movements of the eyes are perfectly performed. The pulse is 140, and after lying down ten minutes 136. There is a fine rhythmical tremor in the fingers of both hands.

(C)—CASE No. 7. Annie F——, aged 20. Single. German. July 14, 1890. Patient gives a neurotic family history: Father died of paralysis and mother has recently had an attack of hemiplegia. Two sisters suffer from headache. When 14 years old had a severe fright from fire in the house, and ever since then has been nervous and excitable. Menses appeared seven years ago, but have never been regular. Remained in fairly good health until last January, when she had frequent attacks of vomiting and diarrhoea, followed by much prostration, palpitation of heart, shortness of breath and flushing of face. Although there has been no return of the vomiting and diarrhoea during the past four months, the other symptoms have remained, and she now has tremor of the hands, which is sometimes so severe as to prevent her writing or sewing.

There is no enlargement of the thyroid and no exophthalmos. The pulse is 160. A loud bruit is heard over the vessels of the neck, and on palpitation a distinct thrill is imparted to the hand. No murmur directly connected with the sounds of the heart is discoverable. The patient is slightly anæmic, but not sufficiently so to account for the conditions present. The hands are moist and tremulous; the face flushed. Temperature 100. Examination of lungs negative.

CASE No. 8. Rosa D——, aged 18. Single. Cashier. German. October 28, 1892. No history of any hereditary nervous trouble. Both parents living and healthy. She has always been of an excitable disposition and easily worried over trifles. When a child had scarlet fever, measles and whooping cough. In her fourteenth year she was much frightened by the appearance of menstruation, not having been informed as to this function. Her periods have been regular, but she generally suffers a good deal of pain. One year ago she commenced to have attacks of palpitation, with shortness of breath, flushing of the face and a tendency to perspire easily. Within the past three months she has been compelled to give up her position, as the above symptoms have become more constant and severe. At night sleep is disturbed by the palpitation and throbbing in the neck, and she is often suddenly aroused by a sensation of smothering. It is quite difficult for her to compose herself or to keep quiet for any length of time. There is no evidence of any affection of the thyroid or eyes. Pupils are dilated, responding well to light and accommodation. Fundus normal. When asked to stand and close her eyes, the face becomes flushed, perspiration breaks out and there is a general nervous trembling of the whole body. The pulse is 148. Temperature 99°.

October 15, 1893. A relative informs me that the patient returned to Germany shortly after visiting the Hospital, and that she now has prominent eyes and goitre.

SUMMARY.—Of the eight cases, two were males and six females; a proportion of three to one. Five were married and three single. The age varied between the two extremes of 17 and 40 years. Three gave a history of fright, two of rheumatism and two were anæmic. The three cardinal symptoms were present together in three; exophthalmos and tachycardia in one; thyroid enlargement and rapid heart in two; cardiac involvement alone in two. The temperature was above the normal in four ($99-100\frac{2}{3}^{\circ}$). The movements of the lids

did not follow those of the globe (Von Graefe's symptom) in three. Tremor was a prominent symptom in five. Only one gave the history of having had vomiting and diarrhoea, which commenced in the commencement of the illness and was not present while under observation. General nervousness and mental excitability were noticed in five of the cases.

DIAGNOSIS AND PROGNOSIS.—When the three phenomena are present, one is not liable to mistake this disease for any other. The difficulty of diagnosis arises only in certain cases, in which the disease is not fully developed, where we find a forcible and rapid action of the heart, and absence of goitre and exophthalmos. Under these circumstances: the character of the pulse, one of high tension, its constant high rate, varying between 100 and 140, the slight rise in temperature without known cause, flushing of face, nervousness and tremor, and the patient a female, whose age is under 30; even here one should be suspicious and consider the probability of Graves' disease.

Judging from the figures given by careful observers and from my own experience, the prognosis as to a cure is discouraging. The patients are partly liable to die from heart failure, and also seem more prone to die from other causes, apparently unconnected with the trouble, and of those who do not die, quite a large number do not lose the disease completely.

ETIOLOGY AND PATHOLOGY.—Various theories have been advanced by a number of the different authors, but none are entirely satisfactory. The cause has been attributed to recurrent irritation of the cervical sympathetic, to paresis of the vagus, to lesions of the myocardium or cardiac nerves or ganglia and to a central nervous lesion. Before the Neurological Society, March 7th, Dr. William H. Thompson advanced the theory that a specific disorder of intestinal digestion was the primary factor in the genesis of the affection. In my experience diarrhoea is not a frequent symptom and of the eight cases above reported, in only one was there any disturbance of the intestinal tract.

The pathological anatomy of the subject is still scant and the few published autopsies show the utmost varied results, from which no safe deductions can be drawn.

TREATMENT.—Our want of knowledge concerning the etiology of the affection, necessarily makes the treatment difficult

and unsatisfactory. Nevertheless, by perseverance and strict attention to detail, by placing the patient under the best hygienic conditions and by the daily application of galvanism much can be accomplished towards mitigating the intensity of the symptoms, and in a certain number of cases, a cure may result. In Graves' disease, as in many others, the co-existing disorders claim attention and should be treated accordingly, for, if not causative, they probably influence the persistence of the affection.

The treatment generally adopted by the author, and already outlined in the cases just reported, consists of (a) Rest, (b) Aconitia and Potassium Iodide, (c) Galvanism, (d) The question of Thyroidectomy should also be considered.

(a) Rest.—The patient should lie down in a loose fitting garment from two to four hours daily, and when possible, absolute rest in bed from four to six weeks should be insisted on. In two cases seen in private practice this plan was faithfully carried out and was an important factor in influencing the good results obtained.

(b)—The value of Aconitine in Basedow's disease was first pointed out by Dr. E. C. Seguin in 1884, and in recent contributions and discussions he has emphasized the good results obtained from its use. In the majority of cases we find a normal heart with a rapid and small pulse of high tension, and it is in this class of patients that the drug is of benefit by both reducing the pulse rate and arterial tension. It may be given in the form of granules of one two-hundredth of a grain, one pill twice a day and then gradually increased up to six or eight.

Iodide of Potassium in 10 to 15 grain doses three times a day is also frequently of service.

(c)—Galvanism. This should be applied at least once a day, and by the physician himself. The electrodes should be three in number, one with a flat sponge three inches in diameter, and two round sponge electrodes, each one and a half inches in diameter. The sponges having been well moistened with warm water, proceed as follows:

First step.—Place the flat sponge (cathode) over the seventh cervical vertebra and the round sponge (anode) in the auriculo-maxillary fossa, then turn on slowly a current of four to six milliamperes. After four minutes stable application, gradually draw the anode up and down the lower border of the sterno-mastoid muscle, for two minutes.

Second step.—Place the cathode over the goitre and the anode in the region of the solar plexus.

Third step.—One round sponge electrode to be placed on each side of the neck and the current then to be passed transversely through the goitre. The duration of the entire séance should be about eighteen minutes; six minutes for each step. Weak currents are preferable to strong and generally a current strength of four to six milliampères will be sufficient.

(d)—Thyroidectomy. Recently the German surgeons have reported a number of cases cured by the partial removal of the thyroid, and in one case simple division of the isthmus has produced a marked improvement in all the symptoms. Dr. James J. Putnam (*Journal of Nervous and Mental Diseases*, December, 1893) contributes an interesting and impartial review of the entire subject. In his summary of 51 cases, there were 4 deaths attributed to the operation, 18 cured and 14 greatly improved.

It is too soon at present to recommend the operation as a routine practice, but if, after a fair trial of electricity and internal medication, the symptoms should still persist, then thyroidectomy should be tried.

